

ORGANIC COATING COMPOSITIONS FOR
ALUMINIZING METAL SUBSTRATES, AND
RELATED METHODS AND ARTICLES

ABSTRACT OF THE DISCLOSURE

[0090] An organic coating composition is described, which can be used to enrich the surface region of a metal-based substrate with aluminum. The composition comprises an aluminum-based powder and at least one organic resin, e.g., alkyds, epoxies, or silicone materials. At least some of the aluminum-based powder is in the form of substantially spherical powder particles. The coating composition is substantially free of hexavalent chromium. It can be applied to the substrate by a variety of techniques, such as spraying. It is then heat-treated, to cause diffusion of aluminum into the surface region of the substrate, e.g., a turbine engine component. The composition exhibits good thermal and chemical stability for extended periods of time. Related articles are also described.